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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,370	07/18/2006	Emmanouil Spyrou	288840US0PCT	2986

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EXAMINER

SERGEANT, RABON A

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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06/19/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/586,370	Applicant(s) SPYROU ET AL.	
	Examiner Rabon Sergent	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/18/06</u> . | 6) <input type="checkbox"/> Other: ____. |

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1. Claims 2-4 and 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Firstly, within line 11 of claim 2, it appears that there is a word omission between “cocatalysts” and “from”. Furthermore, within line 14, the language, "120 t300°C", is incorrect.

Secondly, with respect to claims 3 and 6-9, the terms, “component A)”, “component B2)”, “amines B3)”, “urea B4)”, and “cocatalysts C)”, lack antecedent basis from claim 1.

Lastly, within claims 2 and 6, the language, “especially the 2,4- and the 2,6-isomers” and “for example superabsorbents”, renders the claims indefinite, because it is unclear whether the limitation(s) following the phrases are part of the claimed invention. It cannot be determined if or to what extent this language further limits the language that precedes it. See MPEP § 2173.05(d).

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Meisert et al. ('712).

Patentees disclose a process for producing carbodiimides, wherein polyisocyanates are reacted at temperatures of at least 150°C in the presence of urea catalysts. See abstract; column 1, lines 49+; and columns 2-4.

4. Claims 1, 5, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meisert et al. ('712) in view of Narayan ('095) and Dunwald et al. ('479).

As aforementioned, the primary reference discloses a process for producing carbodiimides, wherein polyisocyanates are reacted at temperatures of at least 150°C in the presence of urea catalysts. See abstract; column 1, lines 49+; and columns 2-4.

5. Though the primary reference fails to disclose the limitations of claims 5 and 8-10, the position is taken that the features of these claims would have been obvious for the following reasons. Firstly, with respect to claim 5, though the primary reference does not disclose starting isocyanates having the claimed structures, the reference does disclose at column 3, lines 36-38 that any suitable isocyanate capable of carbodiimide formation is contemplated. With this in mind, it is noted that Dunwald et al., also drawn to the production of carbodiimides, disclose at column 3, lines 5+ that polyisocyanates having the claimed groups are suitable for conversion to

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carbodiimides. Therefore, it would have been *prima facie* obvious to use them within the process of the primary reference, since it has been established that they are suitable for carbodiimide conversion. Secondly, with respect to claim 8, though the primary reference fails to disclose the use of dicyclohexylurea, the position is taken that this compound is so chemically similar to those of the reference that one of ordinary skill would have reasonably expected it to function equivalently to those of the prior art. See MPEP 2144.09. With respect to claims 1, 9 and 10, though the primary reference does not disclose the use of the cocatalysts, the position is taken that organometallic catalysts were known to be useful as carbodiimide promoting catalysts at the time of invention. This position is supported by the teachings of Narayan at column 2, line 64 through column 3, line 56 and Dunwald et al. at column 4, line 50. Accordingly, the position is taken that it would have been obvious to use these catalysts in addition to those of the primary reference, because it has been held that it *prima facie* obvious to combine compositions that are taught by the prior art to be useful for the same purpose, so as to obtain a composition that is to be used for the same purpose. *In re Kerkhoven*, 205 USPQ 1069.

6. Claims 1-5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennig et al. ('966).

Patentees disclose the production of carbodiimides wherein polyisocyanates are heated to a temperature above 150°C in the presence of a catalyst, wherein the catalyst is an isocyanate compound containing biuret, urea, amido, urethane, allophanate, isocyanurate, uretdione, or uretonimine groups. Patentees further teach that these compounds are produced by reacting polyisocyanates with isocyanate reactive compounds that will yield the aforementioned groups. See abstract and columns 2 and 3, especially column 3, lines 3-52.

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7. Though the reference fails to disclose that these catalytic compounds may be formed *in situ*, the position is taken, since the catalytic compounds are derived from the same polyisocyanates that the carbodiimides are formed from, that it would have been obvious to form them *in situ* by reacting the polyisocyanate starting materials with initial compounds that will yield the disclosed groups, so as to arrive at a more efficient and less costly process.

Furthermore, in view of the disclosure within column 3, lines 20-39, the skilled artisan would have recognized that the required catalytic groups can be formed from conventional reactants, such as the claimed water, amine compounds, and urea compounds, which upon reaction with polyisocyanates will yield the disclosed catalytic compounds having the disclosed urea or biuret groups. The position is taken that these reactions are extremely well known within the art.

Furthermore, since the disclosed catalytic compounds may possess the groups recited within claim 5, the position is taken that it would have been obvious to utilize such compounds in the process.

8. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennig et al. ('966) as applied to claims 1-5, 7, and 8 above, and further in view of Orywol et al. ('519).

As aforementioned, the teachings of Hennig et al. are considered to render obvious the addition of water to polyisocyanates, which under the disclosed reaction conditions, will yield the disclosed urea functional catalytic compounds and promote the formation of carbodiimide groups. However, while the primary references fail to disclose the use of applicants' claimed water-containing or -releasing substances, the use of such substances to generate urea groups was known at the time of invention. Orywol et al. disclose at column 1, lines 41-46; column 3, lines 50+; column 4, lines 1-24; and column 5, lines 25-36 that water containing zeolites may be

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incorporated within polyisocyanate compositions to release water that reacts with the polyisocyanates to produce urea groups while taking up the resulting carbon dioxide by-product to prevent bubble formation. Accordingly, the position is taken that it would have been obvious to utilize this known technique of introducing water into a urea forming reaction system, especially in situations where the evolution of carbon dioxide as a free gas was not desired.

9. Claims 1, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennig et al. ('966) as applied to claims 1-5, 7, and 8 above, and further in view of Narayan ('095) and Dunwald et al. ('479).

As aforementioned, the teachings of Hennig et al. are considered to render obvious the addition of water to polyisocyanates, which under the disclosed reaction conditions, will yield the disclosed urea functional catalytic compounds and promote the formation of carbodiimide groups. Though the primary reference does not disclose the use of the cocatalysts, the position is taken that organometallic catalysts were known to be useful as carbodiimide promoting catalysts at the time of invention. This position is supported by the teachings of Narayan at column 2, line 64 through column 3, line 56 and Dunwald et al. at column 4, line 50. Accordingly, the position is taken that it would have been obvious to use these catalysts in addition to those of the primary reference, because it has been held that it *prima facie* obvious to combine compositions that are taught by the prior art to be useful for the same purpose, so as to obtain a composition that is to be used for the same purpose. *In re Kerkhoven*, 205 USPQ 1069. Furthermore, since the disclosed catalysts of the secondary references would have been expected to promote the reaction between the polyisocyanates and water, amines, or ureas to yield the required catalytic

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compounds, the position is taken that it would have additionally been obvious to add them for this reason.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.

/Rabon Sergent/
Primary Examiner, Art Unit 1796